

AWARD NUMBER:

W81XWH-16-1-0359

TITLE:

North Carolina Summer Undergraduate Prostate Cancer Research Program

PRINCIPAL INVESTIGATOR(S):

Kounosuke Watabe, Ph.D.

CONTRACTING ORGANIZATION:

WAKE FOREST UNIVERSITY HEALTH SCIENCES
WINSTON SALEM NC 27157

REPORT DATE:

August 2017

TYPE OF REPORT:

Annual

PREPARED FOR:

U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT:

Approved for Public Release;
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE August 2017		2. REPORT TYPE Annual		3. DATES COVERED 15 Jul 2016 - 14 Jul 2017	
4. TITLE AND SUBTITLE North Carolina Summer Undergraduate Prostate Cancer Research Program				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER W81XWH-16-1-0359	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Kounosuke Watabe, Ph.D. E-Mail: kwatabe@wakehealth.edu				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) WAKE FOREST UNIVERSITY HEALTH SCIENCES MEDICAL CENTER BLVD WINSTON SALEM NC 27157				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The proposed training program for summer students is a joint effort of the Wake Forest Baptist Comprehensive Cancer Center (WFBCCC) and two Historically Black College and Universities (HBCU), North Carolina A&T State University (NC-AT) and Winston-Salem State University (WSSU). North Carolina is among the most diverse states in the nation, and ranks seventh in the U.S. with respect to percentage of African American residents. Unfortunately, the state is also ranked #7 in the U.S. for incidence of prostate cancer, in part because of disparities among African American men. The goal of this project is to provide more opportunities for training in prostate cancer research to students who can then strive to address this important public-health issue in our region.					
15. SUBJECT TERMS None provided					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			USAMRMC
Unclassified	Unclassified	Unclassified	Unclassified	10	19b. TELEPHONE NUMBER (include area code)

Table of Contents

Cover..... 1

SF 298..... 2

Table of contents..... 3

Introduction..... 4

KeyWord..... 4

Accomplishments..... 4

Other achievements..... 7

Impact..... 8

Changes..... 8

Product 9

1. INTRODUCTION:

The proposed training program for summer students is a joint effort of the Wake Forest Baptist Comprehensive Cancer Center (WFBCCC) and two Historically Black College and Universities (HBCU), North Carolina A&T State University (NC-AT) and Winston-Salem State University (WSSU). North Carolina is among the most diverse states in the nation, and ranks seventh in the U.S. with respect to percentage of African American residents. Unfortunately, the state is also ranked #7 in the U.S. for incidence of prostate cancer, in part because of disparities among African American men. The goal of this project is to provide more opportunities for training in prostate cancer research to students who can then strive to address this important public-health issue in our region.

2. KEYWORDS:

Prostate Cancer, Summer training program, Underrepresented minority, North Carolina, Historically Black College and University,

3. ACCOMPLISHMENTS:

- **What were the major goals of the project?**

Specific Aim 1: To recruit 6 undergraduate trainees per year from two HBCU.

Subtask 1: Disseminate information of the program at two HBCU.

Subtask 2: Select and identify top candidate trainees.

Subtask 3: Match the trainees with mentors

Milestone(s) Achieved: Complete selection of 6 students/year from two HBCU and match them to mentors.

Specific Aim 2: To provide the trainees a comprehensive training curriculum in prostate cancer research at CCCWFU.

Subtask 1: Deliver didactic lectures.

Subtask 2: Organize shadowing activities.

Subtask 3: Perform laboratory research by mentees.

Subtask 4: Present the research results at a prostate cancer symposium.

Milestone(s) Achieved: Mentees attend all activities and prepare a poster/abstract for presentation.

Specific Aim 3: To track and guide trainees on their progress toward becoming prostate cancer researchers

Subtask 1: Tracking students by continuous communication with mentors, elaboration and maintenance of database, yearly survey, use of social media and formal meeting with Faculty Advisors.

Subtask 2: One-on-one meetings between mentees and Faculty Advisors at HBCU for evaluating academic performance and willingness to pursue graduate studies.

Subtask 3: Guide trainees for preparing graduate school (support with GRE examination and orientation for graduate school application)

Milestone(s) Achieved: Mentees decide to pursue post graduate studies, participate in GRE examination, apply to graduate schools, update registry of trainee's academic progress.

- **What was accomplished under these goals?**

1. Major activities

Specific Aim 1: To recruit 6 undergraduate trainees per year from two HBCU.

We recruited minority undergraduate students from local HBCUs (Winston-Salem State University and North Carolina A and T State University). We received 22 and 21 applications in 2016 and 2017, respectively (Table 1). The average GPA of these applicants was 3.4 in both years. We admitted 6-7 students in each year and their average GPA was 3.5-3.6. Therefore, we were able to recruit high quality students in this program. We then assigned student to each mentor as shown in Table 2 and 3. Therefore, Specific Aim 1 for 2016 was accomplished.

Table 1. Student applications

	# of applicants	Ave GPA of applicants	# of students accepted	Ave. GPA of accepted students
2016	22	3.4	7	3.5
2017	21	3.4	6	3.6

Table 2. Students assignment in 2016

Student	Research Mentor	Building & Lab Location	Email Address
Toneia Washington	Ko Watabe, PhD	Hanes, 4 th Floor, Rm 4017	kwatabe@wakehealth.edu
Tomi Ladipo	Steve Kridel, PhD	Hanes, 5 th Floor, Rm 5032	skridel@wakehealth.edu
Natasha McMasters	Hui-Kuan Lin, PhD	Dean, 3 rd Floor, Rm 363	hulin@wakehealth.edu
Mahder Mamo	Yusuke Shiozawa, MD, PhD	Hanes, 4 th Floor, Rm4013	yshiozaw@wakehealth.edu
Tanya Zubov	Bill Gmeiner, PhD, MBA	Hanes, 5 th Floor, Rm 5014	bgmeiner@wakehealth.edu
Taylor King	Xiaobo Zhou, PhD	MRI, 2 nd Floor	xizhou@wakehealth.edu
Koran Harris	Beth Kerr, PhD	Hanes, 5 th Floor, Rm 5017	bkerr@wakehealth.edu

Table 3. Students assignment in 2017

Student	Email Address	Research Mentor	Building & Lab Location	Mentor Email Address
Olen Black	oblack108@rams.wssu.edu	Gagan Deep, PhD	Hanes, Room 5034	gdeep@wakehealth.edu
Tiffany Dean	tdean115@rams.wssu.edu	Bill Gmeiner, PhD, MBA	Hanes, Room 5014	bgmeiner@wakehealth.edu
Jalynn Gray	jmgray2@aggies.ncat.edu	Steve Kridel, PhD	Hanes, Room 5032	skridel@wakehealth.edu
Taylor Johnson	tajohnson@aggies.ncat.edu	Ko Watabe, PhD	Hanes, Room 4019	kwatabe@wakehealth.edu
Ziaqueria Short	zshort114@rams.wssu.edu	Beth Kerr, PhD	Hanes, Room 5017	bkerr@wakehealth.edu
Selena Williams	snwilli4@aggies.ncat.edu	Yusuke Shiozawa, MD, PhD	Hanes, Room 4013	yshiozaw@wakehealth.edu

Specific Aim 2: To provide the trainees a comprehensive training curriculum in prostate cancer research at WFBCCC.

Below is the schedule of didactic lectures in 2016. The attendance of students was 100%.

Lectures in 2016

June 2: Basic Cancer Biology (Dr. H. Lo)
June 7: Basic Tumor Immunology (Dr. K. Watabe) 10am
June 9: Metastatic disease (Dr. E. Karr)
June 14: Prostate Cancer Biology/Physiology (Dr. S. Kridel)
June 16: Prostate Cancer Diagnosis and Treatment (Dr. Y. Shiozawa)
June 21: Population Science of prostate cancer (Dr. K. Weaver)
July 21: Careers in Prostate Cancer Research and Care (panel discussion/Watabe/Gmeiner).

Each student was assigned to mentor's lab as described above (Table 2 and 3). They conducted research in each lab as instructed by mentors. At the end of their research, we had a mini-symposium where students presented their results.

Friday, July 22, 2016

11:00 – 11:15 am	Arrive at the Cancer Center with posters & posterboard <i>(Kelly will meet you outside of Conference Room 10C with easels)</i>
12:00 – 1:00 pm	SEMINAR: “A Transdisciplinary Approach to Prostate Cancer Equity” <i>Dr. Chanita Hughes-Halbert</i> <u>Location:</u> 10 th Floor, Comprehensive Cancer Center Conference Room, 10C
1:00 – 2:45 pm	Student Presentations (10 min talk; 5 min questions) 1. <i>Mahder Mamo (Yusuke Shiozawa Lab)</i> 2. <i>Tomi Ladipo (Steve Kridel Lab)</i> 3. <i>Natasha McMasters (Hui-Kuan Lin Lab)</i> 4. <i>Toneia Washington (Ko Watabe Lab)</i> 5. <i>Tanya Zubov (Bill Gmeiner Lab)</i> 6. <i>Taylor King (Xiaobo Zhou Lab)</i> 7. <i>Koran Harris (Beth Kerr Lab)</i>
2:50 – 3:20 pm	Poster Sessions <u>Location:</u> 10 th Floor, Comprehensive Cancer Center Conference Rm, 10B
3:25 – 3:55 pm	Dr. Hughes-Halbert meeting with Program Students <u>Location:</u> 10 th Floor, Comprehensive Cancer Center Conference Room, 10C
4:00 pm	Closing Remarks

Therefore, Specific Aim 2 for 2016 was successfully accomplished as planned.

Specific Aim 3: To track and guide trainees on their progress toward becoming prostate cancer researchers

We followed up these students participated in the program by periodical emails. One of students in 2016, Koran Harris expressed interest in continuing research after completion of the training. He also presented his

research at the annual meeting of ABRCAM (Tampa, FL, 2016). After professional counselling with the mentor and program directors, he decided to apply for our graduate program and he was admitted to Cancer Biology program. He continues his research as a Ph.D. student in the field of prostate cancer under supervision of the summer mentor, Dr. Beth Kerr.

Therefore, Specific Aim 3 for 2016 was successfully accomplished.

2. Specific objectives

All of our specific objectives are met as described above.

3. Significant results/Key outcomes

Overall the program was quite successful. We were able to guide summer students to consider their careers in prostate cancer research. One of the students in 2016 is already admitted in our graduate program and continues his research on prostate cancer.

4. Other achievements

In the first year (2016), 4 students presented their results at the ABRCMS meeting (Tampa, Florida), and one of the students (Tomi Ladipo) won a presentation award.

What opportunities for training and professional development has the project provided?

The program is intended to train minority undergraduate students and to provide them with guidance for their future career to be a prostate cancer researcher. As described above, we conducted intensive 8 weeks program in 2016. Overall the program was quite successful and we were able to guide some of the students into the research track.

How were the results disseminated to communities of interest?

1. Our program was publicly announced by our department website (removed now).
2. Our program was introduced in local a TV channel (Fox 8 TV) on July 21st.
<http://myfox8.com/2016/07/21/wake-forest-baptist-recruiting-minorities-for-prostate-cancer-research/>
3. The results of student research were presented at our Mini-symposium in our Cancer Center (2016) which was open to public. The presentation was done both orally and with posters.
4. National meetings:
In 2016, 4 students (Tanya Zubov, Tomy Ladipo, Koran Harris, Nastasha McMasters) presented their posters at the ABRCMS meeting (Tampa, FL). One of the students won a presentation award.

a. What do you plan to do during the next reporting period to accomplish the goals?

We recruited 6 students in 2017 (as of 7/14/2017) and the program is ongoing. Because the program was very successful, we plan to continue our plan in 2017-2018.

5. IMPACT:

- a. **What was the impact on the development of the principal discipline(s) of the project?**

2016:

We recruited 7 minority students in 2016 and all of them completed their training. Four students presented their research at the ABRCAM meeting (Tampa, FL) in 2016, and one of them received Research award. One student was admitted into our graduate program and continues his research in prostate cancer as a Ph.D. student.

- b. **What was the impact on other disciplines?**

Nothing to report

- c. **What was the impact on technology transfer?**

Nothing to report

- d. **What was the impact on society beyond science and technology?**

In 2016, the program was publicized at our local TV (Fox 8 channel on 7/21/2016). The news was well received in public, which we believe helped awareness of our effort in health disparity research.

6. CHANGES/PROBLEMS:

Nothing to report.

- a. **Changes in approach and reasons for change**

No change was made.

- b. **Actual or anticipated problems or delays and actions or plans to resolve them**

The program was smooth and there was no delay.

- c. **Changes that had a significant impact on expenditures**

Not change was made.

- d. **Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents**

No changes.

- e. **Significant changes in use or care of human subjects**

No changes

f. Significant changes in use or care of vertebrate animals.

No changes

g. Significant changes in use of biohazards and/or select agents

No changes

7. PRODUCTS:

a. Publications, conference papers, and presentations

i. Journal publications.

Nothing to report.

ii. Books or other non-periodical, one-time publications.

Nothing to report

iii. Other publications, conference papers, and presentations.

2016:

1. Tomi Ladipo and Steven Kridel. The ACC Inhibitor CP-640186 Reduces Growth and Viability of Paclitaxel Resistant Prostate Cancer Cell Lines. Annual meeting of ABRCAM 2016, Tampa FL.
2. Toneia Washington, Sambad Sharma, and Kounosuke Watabe, Roles of Regucalcin in Prostate Cancer Recurrence. Annual meeting of ABRCAM 2016, Tampa FL.
3. Koran Harris, Lihong Shi, Taylor Peak, Aleksander Skardal, Bethany Kerr. Disseminated Tumor Cell Marker CD117 Drives Prostate Cancer Metastasis. Annual meeting of ABRCAM 2016, Tampa FL
4. Natasha McMasters and Hui-Kuan Lin. "Distinguishing the Function of Cytoplasmic Promyelocytic Leukemia Protein in Prostate Cancer." Annual meeting of ABRCAM 2016, Tampa FL

a. Website(s) or other Internet site(s)

Our program was announced at our Department web site and at our graduate program site in 2016 (deleted now).

In 2016, the program was publicized at our local TV (Fox 8 channel on 7/21/2016). The news was well received in public, which we believe helped awareness of our effort in health disparity research.

b. Technologies or techniques

Nothing to report.

c. Inventions, patent applications, and/or licenses

Nothing to report.

d. Other Products

Nothing to report.

PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

e. What individuals have worked on the project?

NA

f. Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

NA

g. What other organizations were involved as partners?

NA

2. SPECIAL REPORTING REQUIREMENTS

NA

3. APPENDICES:

NA